

Amendments to the Drawings:

The drawing sheet attached in connection with the above-identified application containing Figures 4 and 5 is being presented as a new formal drawing sheet to be substituted for the previously submitted drawing sheet. Figure 4 has been amended. Appended to this amendment are annotated copies of the previous drawing sheet which has been marked to show changes presented in the replacement sheet of the drawings.

The specific changes which have been made to Figure 4 is to add item "16" to the figure.

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claims 11 and 12 have been cancelled.

New claims 13-19 have been added.

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 1-6, 8-10, and 13-19 are now pending in this application.

For better clarity, claim 1 now recites a header tank, as conventionally forms part of a heat exchanger, e.g., a condenser or radiator, as disclosed in the application. Fig. 4 has been amended to generally identify a header tank 16. The alternative subject matter of previous claim 2 has been split between amended claim 2 and new claims 17-19. Other preferred aspects of the invention are claimed in new claims 13-16.

Rejection under 35 U.S.C. § 102

Claims 1, 3-6, 8, 9, and 11 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,412,547 (hereafter "Siler"). This rejection is respectfully traversed.

Amended claim 1 recites a heat exchanger module suitable for use in a motor vehicle that comprises a plurality of tubes and corrugated fins connected to one another to form a heat exchanger block; at least one header tank connected to ends of the tubes; and two side parts which frame the heat exchanger module on opposite sides of the block, wherein at least one predetermined breaking region is provided on at least one side part, wherein the side parts comprise a base portion and marginal regions; wherein the marginal regions of the side parts are bent through approximately 90° to form flanges along the longitudinal edges of the side

part and at least one of the flanges along the longitudinal edge is interrupted by a cutout; wherein the cutout completely interrupts the flange along the longitudinal edge of the side part and penetrates partially into the base portion of the side part, and wherein the cutout cooperates with at least one aperture in the base portion of the side part to define between the cutout and the aperture a predetermined breaking point, and wherein the predetermined breaking point is adapted to break when subjected to thermally-induced stress caused in the tubes during operation of the heat exchanger. Claims 3-6, 8, 9, 10, and 13-16 depend upon claim 1.

Siler discloses a side plate 18, 20 that is bent along lines 28 and 30 to form a channel with a base 32 flanked by upstanding legs 34, 36. See Siler at col. 4, lines 33-41. Siler discloses at least one opening 42 formed in the base 32 and upstanding leg 34, with the opening having a periphery 48 and a part 50 in close adjacency to the edge 40 of the side plate 18, 20. See Siler at col. 4, lines 56-57, and Figure 4.

The side plates 18, 20 disclosed by Siler do not include cutouts “wherein the cutout completely interrupts the flange along the longitudinal edge of the side part.” As shown in Figures 1 and 4 of Siler, the upstanding legs 34, 36 continue past openings 42, 44. Although the openings 42, 44 are in close adjacency to the edges 38, 40, the openings 42, 44 are spaced from the edges 38, 40 and do not completely interrupt the upstanding legs 34, 36. Nor does Siler disclose that the side plates 18, 20 include cutouts “wherein the cutout cooperates with at least one aperture in the base portion of the side part to define between the cutout and the aperture a predetermined breaking point.” Therefore, Siler fails to disclose all of the features of amended claim 1. Withdrawal of this rejection is respectfully requested.

Rejection under 35 U.S.C. § 102/103

Claim 2 is rejected under 35 U.S.C. § 102(a, e) as being anticipated by U.S. Patent No. 6,523,603 (hereafter “Uchikawa et al.”) or, in the alternative, under 35 U.S.C. § 103(a) as being unpatentable over Uchikawa et al. in view of U.S. Patent No. 1,357,597 (hereafter “Springer”). This rejection is respectfully traversed. Claim 2 depends upon claim 1 and therefore recites the features of amended claim 1.

In regard to the rejection under 35 U.S.C. § 102(b), Uchikawa et al. discloses a side plate 130 with slits 135 for absorbing heat stress generated in heat exchanging tubes through a change in the opening area of the slits 135. See Uchikawa et al. at col. 6, lines 53-57. Therefore, Uchikawa et al. teaches that heat stresses cause the side plate 130 to deform, not break, due to a change in the opening area of the slits 135. One of ordinary skill in the art would understand that the slits 135 disclosed by Uchikawa et al. cause the side plate 130 to deform and bend so that the opening area of the slits 135 decreases or increases as heat stresses are generated in heat exchanging tubes. Therefore, Uchikawa et al. fails to disclose a heat exchanger with side parts with cutouts “wherein the cutout cooperates with at least one aperture in the base portion of the side part to define between the cutout and the aperture a predetermined breaking point.” (emphasis added)

The Office argues that “[a]ny brace which has substantial material removed in the form of a notch or slit will inherently preferentially fracture at that location.” See Office Action at pages 3-4. However, this argument disregards the teachings of Uchikawa et al. regarding the deformation of the side plate 130 due to the geometry of slits 135. Even if the slits 135 do form preferential fracture sites in the side plates 130 of Uchikawa et al., these preferential fracture sites would not break under the stresses that arise during operation of a heat exchanger. As noted above, one of ordinary skill would understand that the slits 135 of Uchikawa et al. would cause the side plates 130 to deform, not break. This operation is apparent in Figures 12A, 12B, 13A, and 13B of Uchikawa et al. because the edges of the slits 135 are formed by smooth edges that lack corners or other shapes that would concentrate stress and create a preferential fracture site. Further, the stress required to break the side plate 130 would exceed the stresses that arise during operation of a heat exchanger that includes a side plate 130. Therefore, Uchikawa et al. fails to disclose a heat exchanger with side parts “wherein the predetermined breaking point is adapted to break when subjected to thermally-induced stress caused in the tubes during operation of the heat exchanger.”

Furthermore, Uchikawa et al. fails to disclose a heat exchanger with side parts “wherein the cutout cooperates with at least one aperture in the base portion of the side part to define between the cutout and the aperture a predetermined breaking point.” Uchikawa et al. discloses a side plate 130 that include slits 135 that open directly into expanded slit ends

135a. See Uchikawa et al. at col. 6, lines 41-59, and Figures 12A-13B. Uchikawa et al. does not disclose a predetermined breaking point defined between a cutout and an aperture.

In regard to the rejection under 35 U.S.C. § 103(a), Springer fails to remedy the deficiencies of Uchikawa et al. noted above. The Office argues that a teaching of supplementing corrugations with slots does not detract from a conclusion that these features are equivalent. See Office Action at page 4. Applicant respectfully disagrees with this argument because supplementing a feature with an additional feature does not provide a teaching of equivalence for these features. Springer does not disclose that flexible bellows and slots are equivalent and may be interchanged. Furthermore, Springer does not disclose, teach, or suggest that openings 8 form predetermined breaking points. Therefore, it would not have been obvious to one of ordinary skill to have modified the side plate of Uchikawa et al. by the teachings of Springer to form the heat exchanger recited by claim 2. Nor would one of ordinary skill in the art have had motivation to make such a modification. Withdrawal of this rejection is respectfully requested.

Rejections under 35 U.S.C. § 103

Claim 10 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Siler. This rejection is respectfully traversed. Claim 10 depends upon claim 1. Siler does not disclose or suggest all of the features recited by claim 1. Nor would it have been obvious to modify the heat exchanger of Siler to provide the heat exchanger of claim 10. Withdrawal of this rejection is respectfully requested.

Claim 12 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Siler in view of U.S. Patent No. 5,954,123 (hereafter "Richardson"). Claim 12 has been cancelled. Withdrawal of this rejection is respectfully requested.

Claim 1 has been amended to incorporate the subject matter of cancelled claim 12. Richardson discloses side supports 4 that include gaps 12. See Richardson at col. 3, lines 59-63. Richardson discloses that the gaps 12 completely separate one end of a side support 4 from another end and that the flanges 5 of the side supports are fractured. See Richardson at col. 2, lines 30-35, 49-53. Therefore, the side supports 4 disclosed by Richardson do not

include marginal regions “wherein the cutout cooperates with at least one aperture in the base portion of the side part to define between the cutout and the aperture a predetermined breaking point” (emphasis added) because the side supports 4 are already fractured and partitioned by gaps 12, as taught by Richardson. Therefore, it would not have been obvious to one of ordinary skill to modify the heat exchanger of Siler by the teachings of Richardson to provide the heat exchanger of claim 1. Nor would one of ordinary skill have a motivation for making such a modification.

The remaining dependent claims are submitted to be patentable for at least the reasons set forth above with regard to the parent claims.

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date August 2, 2006

By



FOLEY & LARDNER LLP
Customer Number: 22428
Telephone: (202) 672-5414
Facsimile: (202) 672-5399

Richard L. Schwaab
Attorney for Applicant
Registration No. 25,479



ANNOTATED SHEET
TO SHOW
CHANGES MADE

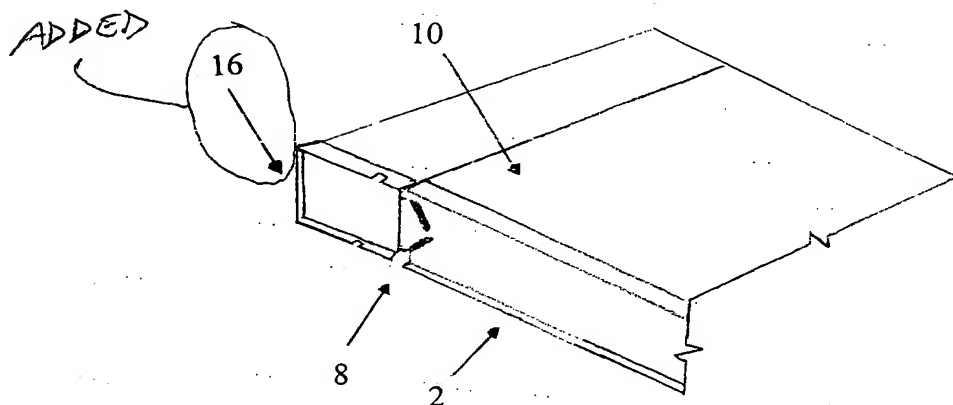


Figure 4

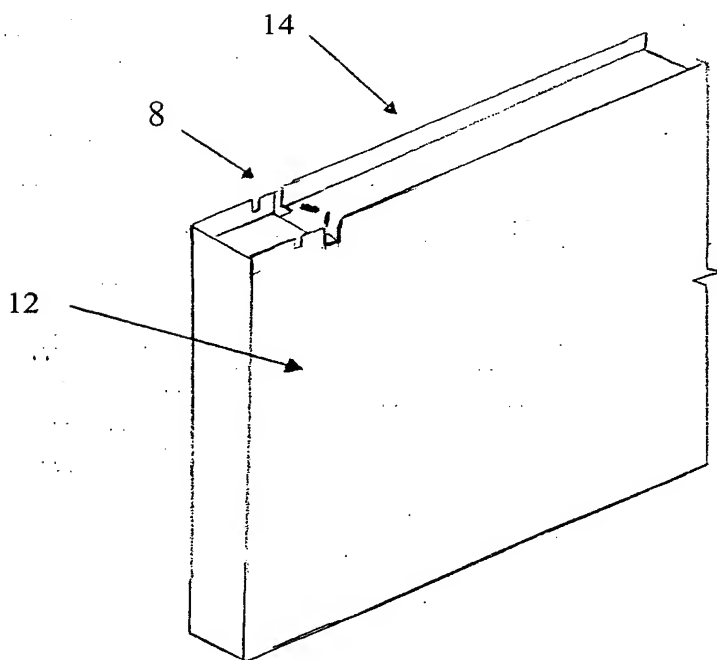


Figure 5